FDC Question Bank - compiled by Asst. Prof. Nikhil K Pawanikar

Unit 1

Q.1 Explain Analog and Digital system.

Q.2 What are number system and how are number system catgorised. Give examples.

Q.3 Write short notes on the following:
A. Binary number system.
B. Decimal number system.
C. Hexadecimal number system.
D. Octal number system.

Q.4 Inter-conversions: From one number system to other number system.

Q.5 Binary:
1. Addition
2. Substraction
3. Multiplication
4. Division

Q.6 1s compliment and 2s compliment. (Binary substration)

Q.7 Write short notes on the following:
1.BCD code
2.EXCESS 3 code
3.GRAY code
4.Hamming code

Q.8 A] For the given 4-bit number. Calculate the 7-bit hamming code using odd parity and even parity.

Q.9 B] For the 7-bit hamming code check whether it has error or not if it has error then find the location and correct it.

Unit 2

Q.1 What are logic gates. Give its types with examples.

Q.2 Write short notes on the following:
A] Basic logic gates.
B] Universal Gates.
C] Derived Gates.
D] D-Morgans law.
E] Boolean Algebra.

Q.3 Simplify the given expression using boolean algebra and Draw the circuit diagram.

Q.4 Explain why NAND and NOR gates are called as universal gates.

Q.11 Simplify given logic expression using K-map. (minterm, maxterm, don't cares)

Unit 3

Q.1 Explain combinational circuit with examples.

Q.2 Write short notes on the following:
A] Half Adder.
B] Half Substractor.
C] Full Adder.
D] Full Substractor.

Q.3 Explain Multiplexers and Demultiplexers.

Q.4 Explain the following types of Multiplexers:
A] 2:1 Multiplexers.
B] 4:1 Multiplexers.
C] 8:1 Multiplexers.
D] 16:1 Multiplexers.

Q.5 Explain the following types of Demultiplexers:

A] 1:2 Demultiplexers.
B] 1:4 Demultiplexers.
C] 1:8 Demultiplexers.
D] 1:16 Demultiplexer

Q.6 Explain the following types of decoders:
A] 2:4 Decoder.
B] 3:8 Decoder.
C]4:16 Decoder

Q.7 Explain the following types of code converters :
A] Binary to BCD converter.
B] BCD to Binary converter.
C] BCD to EXCESS 3 converter.
D] EXCESS 3 to BCD converter.

Unit IV

1. Define Flip Flops and explain them with the help cross coupled invertors.
2. Explain SR FF
3. Explain clocked SR FF with preset & clear
4. Explain J K FF
5. Explain Race Around condition in JK FF
6. Explain Master Slave FF OR Explain how is the Race Around Condition avoided in JKFF
7. Explain D FF
8. Explain T FF
9. Write short note on Registers(Register & Buffer Register)
10. Write short note on shift register and modes
11. Explain SISO register in left shift mode
12. Write short note on : Counters
13. Explain 2 bit asynchronous up counter or Ripple counter

Unit V

1. With a neat labeled diagrams explain basic computer organization & operations
2. Explain the following operations in detail
    a. Input
    b. Output
    c. Storage
    d. Process
    e. Control
3. Explain the internal structure of a processor with a diagram (CU & ALU)
4. Explain Instruction Set and Register with respect to processor
5. Write short note on : Processor Speed.
6. Differentiate between Primary Memory & Secondary Memory
7. Explain Primary memory in detail
8. Explain Secondary memory in detail
9. Explain the following points with respect to primary memory
    a. Organization
    b. Word Length
    c. Memory Capacity
10. Define ROM, Types of ROM & Cache Memory
11. What are the limitations of primary storage & how are they overcome by secondary storage?
12. Give diagram for classification of secondary storage devices
13. Differentiate between sequential access storage devices and direct access storage devices.

14. Explain Magnetic Disk with the help of following points:
    a. Definition (basics)
    b. Storage organization (tracks, sectors)
    c. Disk Address
    d. Concept of cylinder
    e. Storage capacity
    f. Disk pack- access mechanism
    g. Access time
    h. Types of magnetic disks
    i. Advantages & Disadvantages
15. Explain Optical Disk with the help of following points:
    a. Definition (basics)
    b. Storage organization (tracks, sectors)
    c. Storage capacity
    d. Access mechanism
    e. Access time
    f. Types of optical disks
16. Explain memory storage devices and storage hierarchy

Unit VI

1. Explain OS with respect to
    a. Definition
    b. Logical Architecture
2. List the main functions of an OS and Parameters for Measuring System Performance
3. Define:
    a. Process management
    b. Memory management
    c. Command interpretation
4. What is Multiprogramming? Explain Uni-programming systems.
5. Explain Multiprogramming Systems
6. Explain the process states in Multiprogramming Systems
7. Explain the Requirements of Multiprogramming Systems
8. Write short notes on the following:
    a. Multitasking
    b. Multithreading
    c. Multiprocessing
9. Explain Time sharing system in detail
10. Explain Multi Programming with fixed number of partitions
11. Explain Multi Programming with Variable number of partitions
12. Explain Virtual Memory in detail
13. Explain file management with the help of following points:
    a. Definition
    b. File access methods
    c. File operations
    d. File naming
    e. File Extensions
14. Write short note on : Security and Command Interpretation